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ANTHRACNOSE OF MANGO

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A choice mango is one of the most delicious tropical fruits produced in Florida. The only difficulty lies in getting enough of them. Seedling mangoes frequently produce good crops, while the better varieties are often shy bearers. The setting of mango fruits is undoubtedly influenced by weather conditions at blooming time, but the major factor directly limiting the crop in Florida is anthracnose, a fungous disease caused by *Colletotrichum gloeosporioides* Penz. Rainy or foggy weather not only interferes with good pollination but also favors development of this disease.

THE DISEASE

Anthracnose attacks all the more tender portions of the mango tree, including twigs, leaves, flower stems, flowers and fruits. Sometimes older twigs, if injured or otherwise weakened, are attacked and succumb to this disease. Young leaves when infected wither and dry up. Even before they expand, the folded edges may be attacked and killed, preventing the leaf from developing normally. These dark diseased areas dry out and fall away, leaving a ragged-looking leaf. If moist weather continues, the whole leaf is killed. Frequently, the fungus spreads down the petioles to the young twigs, resulting in a condition similar to withertip of citrus. Sometimes the leaves fall off, leaving the bare, dead twig. Such dead leaves and twigs are covered with fruiting bodies of the fungus and constitute a continuous source of infection for other susceptible parts of the tree.

At blooming time, the disease may be especially serious because the flowers and flower stalks are quite susceptible to the disease. Although wet weather at this time undoubtedly decreases the set of mango fruits, the presence of the fungus practically precludes the possibility of a crop. On the stems the disease appears as small black or very dark spots. Affected flowers wither and the pedicels turn dark. A few spots may occur on the stalks of the flower clusters before they are half-grown. By the time the blossoms begin to open, infection may have spread until every flower or flower stalk is withered and

incapable of bearing a fruit. If the early flowers are killed in this manner, so much infective material is present that later flower clusters may be killed before they can open properly.

When lighter infections occur on the flower clusters, some fruit may be set. Later the peduncles of these fruits become affected by the disease and shrivel, causing the fruit to drop.

The fruit itself may be affected in several ways. The most common symptom is the formation of black spots on the skin of the ripening fruits. Very often the whole fruit is covered with these black areas by the time it is approaching maturity. As the fruit begins to ripen and soften, the flesh beneath the spots on the skin decays and the whole fruit is soon lost. This type of injury may cause considerable loss in transit. Shallow infections on the young fruit produce rough streaks or a tear-staining that injures the appearance of the fruit and decreases its market value.

CONTROL

The control of anthracnose is rather difficult, since there is always a large amount of infective material present on mango trees. Moreover, the flower clusters, the part of the plant that it is most necessary to protect, are most susceptible to infection. Bordeaux mixture 3-3-50 strength is the most satisfactory fungicide, but a sticker such as calcium caseinate should be added to obtain the greatest protection.

The first application should be made when the flower buds begin to swell. Further applications should be made according to the following schedule:

No. 1—As flower buds swell—Apply directly into flower clusters.
No. 2—4 days after No. 1—Apply directly into flower clusters.
No. 3—4 days after No. 2—(Omit No. 3 if over ⅔ of the flowers in the clusters are open).
No. 4—7 days after No. 3—(Apply 7 days after No. 2 if No. 3 is omitted).
No. 5—7 days after No. 4.
No. 6—7 days after No. 5.
No. 7—14 days after No. 6.
No. 8—21 days after No. 7.

The first two or three applications protect the flower clusters and stems, while the last five applications are for the preservation of the newly-set fruit. It is necessary to begin spraying before the buds open in order to keep the stems of the flower clusters from becoming infected. Infected pedicels cannot carry a fruit very long. Spraying every four days will not prevent all infection during bad weather, but spraying oftener does not increase the crop sufficiently to recompense the grower for the extra cost. Spraying the flowers every day will prevent all fruit from setting.

The use of the fungicide may not increase the set of fruit materially, but it does enable the tree to hold the fruit that has been set. If rainy weather prevails during the blooming period, few fruits will set no matter how well the trees are sprayed and the value of further spraying during that season may be doubtful.